Amendment to the Claims:

Please amend the claims as follows:

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (previously presented): An isolated, synthetic or recombinant nucleic acid comprising (a) a sequence having at least or about 95% sequence identity to SEQ ID NO:1, wherein the nucleic acid encodes a polypeptide having alpha amylase activity; and (b) sequences fully complementary to (a).

Claim 2 (currently amended): An isolated, synthetic or recombinant nucleic acid comprising (a) a sequence encoding a polypeptide having alpha amylase activity, wherein the complement of said sequence hybridizes under highly stringent conditions to SEQ ID NO:1, and (b) sequences fully complementary to (a), wherein the highly stringent conditions comprise a hybridization under conditions comprising a buffer comprising 50% formamide at about 37°C to 42°C; or, 42°C in 50% formamide, 5x SSPE, 0.3% SDS ~~0.1X SSC, 0.5% SDS, 0.15 M NaCl, for 15 minutes at about 72°C~~, and a wash step comprising use of a buffer comprising 0.15 NaCl for 15 min at 72°C.

Claims 3 to 5 (canceled)

Claim 6 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1, wherein said sequence has at least about 97% sequence identity to SEQ ID NO:1.

Claims 7 to 11 (canceled)

Claim 12 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 6, wherein said sequence has at least about 98% sequence identity to SEQ ID NO:1.

Claim 13 to 15 (canceled)

Claim 16 (previously presented): The isolated, synthetic or recombinant nucleic acid of claim 1, wherein the sequence identity is determined using a sequence comparison algorithm comprising FASTA version 3.0t78 with the default parameters.

Claims 17 to 28 (canceled)

Claim 29 (previously presented): An isolated, synthetic or recombinant nucleic acid encoding a polypeptide having an amino acid sequence having at least about 95% sequence identity to SEQ ID NO:2, wherein the polypeptide is capable of hydrolyzing a starch to a sugar.

Claims 30 to 46 (canceled)

Claim 47 (previously presented): A method of producing a recombinant polypeptide comprising the steps of introducing a nucleic acid encoding the polypeptide into an isolated host cell under conditions that allow expression of the polypeptide, wherein the nucleic acid comprises the sequence of claim 1.

Claim 48 (previously presented): A method of producing and recovering a recombinant polypeptide comprising the steps of: introducing the nucleic acid of claim 1 operably linked to a promoter, into an isolated host cell under conditions that allow expression of the polypeptide, and recovering the recombinant polypeptide.

Claim 49 (withdrawn): A method of generating a variant polynucleotide comprising: obtaining the nucleic acid of claim 1 or claim 2 and modifying one or more nucleotides in said polynucleotide to another nucleotide, deleting one or more nucleotides in said polynucleotide, or adding one or more nucleotides to said polynucleotide.

Claim 50 (withdrawn): The method of claim 49, wherein the modifications are introduced by a method selected from the group consisting of: error-prone PCR, shuffling, oligonucleotide-directed mutagenesis, assembly PCR, sexual PCR mutagenesis, in vivo mutagenesis, cassette

mutagenesis, recursive ensemble mutagenesis, exponential ensemble mutagenesis, site-specific mutagenesis, gene reassembly, Gene Site Saturation Mutagenesis (GSSM) and any combination of these methods.

Claim 51 (withdrawn): The method of claim 50, wherein the modifications are introduced by error-prone PCR.

Claim 52 (withdrawn): The method of claim 50, wherein the modifications are introduced by shuffling.

Claim 53 (withdrawn): The method of claim 50, wherein the modifications are introduced by oligonucleotide-directed mutagenesis.

Claim 54 (withdrawn): The method of claim 50, wherein the modifications are introduced by assembly PCR.

Claim 55 (withdrawn): The method of claim 50, wherein the modifications are introduced by sexual PCR mutagenesis.

Claim 56 (withdrawn): The method of claim 50, wherein the modifications are introduced by *in vivo* mutagenesis.

Claim 57 (withdrawn): The method of claim 50, wherein the modifications are introduced by cassette mutagenesis.

Claim 58 (withdrawn): The method of claim 50, wherein the modifications are introduced by recursive ensemble mutagenesis.

Claim 59 (withdrawn): The method of claim 50, wherein the modifications are introduced by exponential ensemble mutagenesis.

Claim 60 (withdrawn): The method of claim 50, wherein the modifications are introduced by site-specific mutagenesis.

Claim 61 (withdrawn): The method of claim 50, wherein the modifications are introduced by gene reassembly.

Claim 62 (withdrawn): The method of claim 50, wherein the modifications are introduced by Gene Site Saturation Mutagenesis (GSSM).

Claims 63 to 67 (canceled)

Claim 68 (withdrawn): A method for comparing a first sequence to a second sequence comprising the steps of: reading the first sequence and the second sequence through use of a computer program which compares sequences; and determining differences between the first sequence and the second sequence with the computer program, wherein said first sequence comprises the nucleic acid sequence of claim 1 or claim 2.

Claim 69 (withdrawn): The method of claim 68, wherein the step of determining differences between the first sequence and the second sequence further comprises the step of identifying polymorphisms.

Claim 70 (withdrawn): A method for identifying a feature in a sequence comprising the steps of: reading the sequence using a computer program which identifies one or more features in a sequence; and identifying one or more features in the sequence with the computer program, wherein the sequence comprises the nucleic acid sequence of claim 1 or claim 2.

Claim 71 (withdrawn): A method of hydrolyzing a starch linkage comprising contacting a substance comprising the starch with a polypeptide encoded by the nucleic acid of claim 1 or claim 2, under conditions which facilitate the hydrolysis of the starch.

Claim 72 (withdrawn): A method of catalyzing the breakdown of a starch, comprising the step of contacting a sample comprising starch with a polypeptide encoded by the nucleic acid of claim 1 or claim 2; under conditions which facilitate the breakdown of the starch.

Claim 73 (withdrawn): An assay for identifying a polypeptide having alpha amylase activity, wherein the polypeptide is encoded by a subsequence of the nucleic acid of claim 1 or claim 2, said assay comprising the steps of:

(a) contacting the polypeptide with a substrate molecule under conditions which allow the polypeptide to function as an alpha amylase; and

(b) detecting either a decrease in an amount of a substrate or an increase in an amount of a reaction product which results from a reaction between said polypeptide and said substrate; wherein a decrease in the amount of the substrate or an increase in the amount of the reaction product identifies a functional polypeptide.

Claim 74 (currently amended): A nucleic acid probe comprising a nucleic acid that specifically hybridizes under highly stringent hybridization conditions to the amylase-encoding nucleic acid of claim 1 or claim 2, or its fully complementary sequence, wherein [[and]] the highly stringent hybridization conditions comprise a hybridization under conditions comprising 50% formamide at about 37°C to 42°C; or, 42°C in 50% formamide, 5x SSPE, 0.3% SDS ~~0.1X SSC, 0.5% SDS, 0.15 M NaCl, for 15 minutes at about 72°C~~, and a wash step comprising use of a buffer comprising 0.15 NaCl for 15 min at 72°C, and

(a) the nucleic acid has at least 97% identity over at least 75 or 100 consecutive nucleotides of SEQ ID NO:1 or its fully complementary sequence; or

(b) at least 95% identity over at least 150 and 200 consecutive nucleotides of SEQ ID NO:1 or its fully complementary sequence; or,

(c) at least 90% identity over at least 300, 400, 500 or more consecutive nucleotides of SEQ ID NO:1 or its fully complementary sequence.

Claim 75 (previously presented): The probe of claim 74, wherein the nucleic acid comprises DNA or RNA.

Claim 76 to 86 (canceled)

Claim 87 (previously presented): The probe of claim 74, wherein the probe further comprises a detectable isotopic label or a detectable non-isotopic label.

Claim 88 (previously presented): The probe of claim 87, wherein the probe further comprises a detectable non-isotopic label selected from the group consisting of a fluorescent molecule, a chemiluminescent molecule, an enzyme, a cofactor, an enzyme substrate, and a hapten.

Claim 89 to 94 (canceled)

Claim 95 (withdrawn): A method for modifying small molecules, comprising the step of mixing at least one polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2; with at least one small molecule to produce at least one modified small molecule via at least one biocatalytic reaction.

Claim 96 (withdrawn): The method of claim 95, wherein the at least one polypeptide comprises a plurality of polypeptides and the at least one small molecule comprises a plurality of small molecules, whereby a plurality of modified small molecules are produced via a plurality of biocatalytic reactions to form a library of modified small molecules.

Claim 97 (withdrawn): The method of 96, further comprising the step of testing the library to determine if a particular modified small molecule, which exhibits a desired activity is present within the library.

Claim 98 (withdrawn): The method of claim 97 wherein the step of testing the library further comprises the steps of: systematically eliminating all but one of the biocatalytic reactions

used to produce a portion of the plurality of the modified small molecules within the library by testing the portion of the modified small molecule for the presence or absence of the particular modified small molecule with the desired activity, and identifying a specific biocatalytic reaction which produces the particular modified small molecule of desired activity.

Claim 99 (withdrawn): The method of claim 98 wherein the specific biocatalytic reaction, which produces the modified small molecule of desired activity is repeated.

Claim 100 (withdrawn): The method of claim 95 wherein the biocatalytic reactions are conducted with a group of biocatalysts that react with distinct structural moieties found within the at least one small molecule; each biocatalyst is specific for a particular structural moiety or a group of related structural moieties; and each biocatalyst reacts with a plurality of small molecules which contain the particular structural moiety specific to the particular biocatalyst.

Claim 101 (previously presented): A cloning vector comprising the nucleic acid of claim 1 or claim 2.

Claim 102 (previously presented): An isolated host cell transformed or transfected with the nucleic acid of claim 1 or claim 2.

Claim 103 (previously presented): An expression vector capable of replicating in a host cell comprising the nucleic acid of claim 1 or claim 2.

Claim 104 (previously presented): A cloning vector as claimed in claim 101, wherein the cloning vector comprises a viral vector, a plasmid, a phage, a phagemid, a cosmids, a fosmid, a bacteriophage, an artificial chromosome, an adenovirus vector, a retroviral vector, or an adeno-associated viral vector.

Claim 105 (previously presented): An isolated host cell transformed or transfected with the expression vector of claim 103.

Claim 106 (previously presented): An isolated host cell as claimed in claim 102, wherein the host is selected from the group consisting of prokaryotes, eukaryotes, funguses, yeasts, plants and non-human metabolically rich hosts.

Claim 107 (withdrawn): A method for liquefying a starch-comprising composition comprising the step of contacting the starch with a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2.

Claims 108 to 110 (canceled)

Claim 111 (withdrawn): A method for washing an object comprising the step of contacting said object with a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2 under conditions sufficient for said washing.

Claim 112 (withdrawn): A method for textile desizing comprising the step of contacting said textile with a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2 under conditions sufficient for said desizing.

Claim 113 (withdrawn): A method for the treatment of lignocellulosic fibers comprising the step of contacting the fibers with a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2, in an amount effective for improving a fiber property.

Claim 114 (withdrawn): A method for enzymatic deinking of recycled paper pulp, comprising the step of contacting the recycled paper pulp with a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2 in an amount which is efficient for effective deinking of the recycled paper pulp.

Claim 115 (withdrawn): A method for starch liquefaction comprising contacting said starch with a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2 under conditions sufficient for said liquefaction.

Claim 116 (canceled)

Claim 117 (withdrawn): The method of claim 107, wherein the polypeptide having alpha amylase activity encoded by the nucleic acid has the sequence of SEQ ID NO: 2.

Claim 118 (withdrawn): A method for producing a high-maltose or a high-glucose syrup or a mixed syrup comprising: liquefying starch using an effective amount of a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2 to obtain a soluble starch hydrolysate; and saccharifying the soluble starch hydrolysate, thereby resulting in a syrup.

Claim 119 (withdrawn): The method of claim 107, wherein the starch is from a material comprising rice, germinated rice, corn, barley, wheat, legumes or sweet potato.

Claim 120 (withdrawn): The method of claim 107, further comprising addition of a second alpha amylase or a beta amylase or a combination thereof.

Claim 121 (withdrawn – currently amended): A drilling process, or a method of increasing the flow of production fluids from a subterranean formation by removing a ~~viscous,~~ starch-containing~~, damaging~~ fluid formed during production operations and found within the subterranean formation which surrounds a completed well bore comprising:

(a) allowing production fluids to flow from the well bore;

reducing the flow of production fluids from the formation below expected flow rates;

formulating an enzyme treatment ~~by blending together an aqueous fluid and~~ comprising a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2;

pumping the enzyme treatment to a desired location within the well bore and the subterranean formation and allowing the enzyme treatment to degrade the ~~viscous,~~ starch-containing~~, damaging~~ fluid, such that the ~~enzyme treated~~ production fluids can be removed from the subterranean formation to the well surface; or

(b) formulating an enzyme treatment comprising a polypeptide having alpha amylase activity encoded by the nucleic acid of claim 1 or claim 2, and pumping the enzyme treatment to a desired location within the well bore and the subterranean formation; or

(c) the method of (a) or (b), wherein the drilling process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme; or

(d) the method of (a), (b) or (c), wherein in the drilling process is an oilfield drilling process.

Claim 122 (withdrawn): The method of claim 121, wherein the enzyme has the sequence of SEQ ID NO:2.

Claims 123 to 129 (canceled)

Claim 130 (previously presented): A method of producing a recombinant polypeptide comprising the steps of

(a) introducing a nucleic acid encoding the polypeptide into an isolated host cell under conditions that allow expression of the polypeptide, wherein the nucleic acid comprises the sequence of claim 2, or,

(b) introducing the nucleic acid operably linked to a promoter into an isolated host cell under conditions that allow expression of the polypeptide, thereby producing a recombinant polypeptide.

Claim 131 (previously presented): An expression vector comprising the nucleic acid of claim 1 or claim 2, wherein the expression vector comprises a viral vector, a plasmid, a phage, a phagemid, a cosmids, a fosmid, a bacteriophage, an artificial chromosome, an adenovirus vector, a retroviral vector, or an adeno-associated viral vector.

Claim 132 (previously presented): An isolated host cell comprising the nucleic acid of claim 1 or claim 2, wherein the cell is a prokaryote cell, a eukaryote cell, a fungus cell, a yeast cell, a plant cell or a non-human metabolically rich host cell.

Claim 133 (withdrawn): A method for producing a feed or food comprising a recombinant amylase, the method comprising the steps of:

(a) providing a nucleic acid comprising a sequence as set forth in claim 1 or claim 2;

(b) providing a composition comprising a feed or food;

(c) expressing the nucleic acid to produce a recombinant amylase; and

(d) mixing the recombinant amylase and the feed-comprising or food-comprising composition, thereby producing a feed or food comprising a recombinant amylase.

Claim 134 (withdrawn – currently amended): A method of hydrolyzing a starch linkage comprising

(a) contacting a substance containing the starch with a polypeptide having amylase activity encoded by a nucleic acid of claim 1, under conditions which facilitate the hydrolysis of the starch linkage,

(b) the method of (a), wherein ~~optionally~~ the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof, or

(c) the method of (a) or (b), wherein ~~and optionally~~ the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 135 (withdrawn – currently amended): A method of catalyzing the breakdown of a starch, comprising

(a) the step of contacting a sample containing starch with a polypeptide having amylase activity encoded by a nucleic acid of claim 1, under conditions which facilitate the breakdown of the starch,

(b) the method of (a), wherein ~~optionally~~ the starch is isolated or derived from rice, germinated rice, corn, barley, wheat, legumes, sweet potato, milo, sorghum, rye, bulger or a combination thereof, or

(c) the method of (a) or (b), wherein ~~and optionally~~ the method further comprises addition of a second amylase, an alpha amylase or a beta amylase or a combination thereof.

Claim 136 (withdrawn): A method for making an alcohol comprising contacting a starch-comprising composition with a polypeptide having amylase activity encoded by a nucleic acid of claim 1.

Claim 137 (withdrawn): The method of claim 136, wherein the method further comprises contacting the starch-comprising composition with a second polypeptide having amylase activity, or an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 138 (withdrawn): The method of claim 136, wherein the alcohol comprises a fuel ethanol.

Claim 139 (withdrawn): A corn wet milling process comprising use of a polypeptide having amylase activity, wherein the polypeptide is encoded by a nucleic acid of claim 1.

Claim 140 (withdrawn): The corn wet milling process of claim 139, wherein the process further comprises use of a second polypeptide having amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 141 (withdrawn): A baking process comprising use of a polypeptide having alpha amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 142 (withdrawn): The baking process of claim 141, wherein the baking process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 143 (withdrawn – currently amended): A drilling process comprising

(a) use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1, or

(b) the method of (a), wherein in the drilling process is an oilfield drilling process.

Claim 144 (withdrawn): The drilling process of claim 143, wherein the drilling process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 145 (withdrawn): A brewing process comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 146 (withdrawn): The brewing process of claim 145, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 147 (withdrawn): A method for textile processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 148 (withdrawn): The method for textile processing of claim 147, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 149 (withdrawn): A method for paper or pulp processing comprising use of a polypeptide having amylase activity, wherein the polypeptide having amylase activity is encoded by a nucleic acid of claim 1.

Claim 150 (withdrawn): The method for paper or pulp processing of claim 149, wherein the process further comprises use of a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.

Claim 151 (withdrawn): A method for making a beverage comprising a polypeptide having amylase activity, wherein the polypeptide having alpha amylase activity is encoded by a nucleic acid of claim 1.

Claim 152 (withdrawn): The method for making a beverage of claim 151, further comprising a second polypeptide having an amylase activity, an alpha amylase activity, or a beta amylase, or another enzyme.